

found deficient in several particulars, or chargeable with some mistakes.

Permit me the honour to be,

My LORD,

Your Lordship's

Most humble and obedient Servant,

Strand,
Nov. 23d, 1758.

H. Baker.

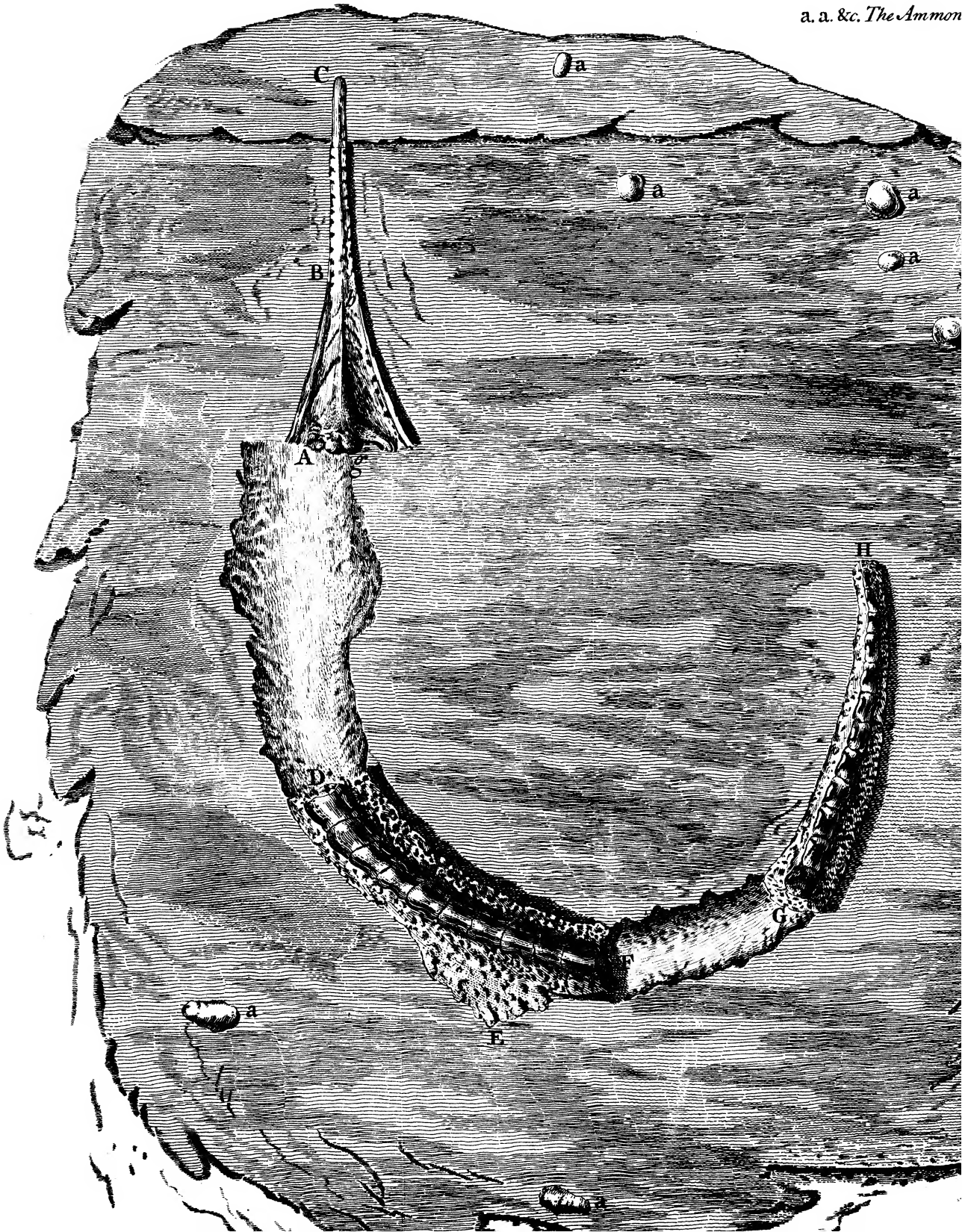
CVIII. *A Description of the fossil Skeleton of an Animal found in the Alum Rock near Whitby. By Mr. Wooller. Communicated by Charles Morton, M. D. F. R. S.*

Read Nov. 23. ^{1758.} **I**T is in this rock, that the Ammonitæ, or Snake-stones, as they are commonly called, are found, which have undoubtedly been formed in the *exuviae* of fishes of that shape; and though none of that species are now to be met with in the seas thereabouts, yet they in many particulars resemble the Nautilus, which is well known. The internal substance of those stones, upon a section thereof, appears to be a stony concretion, or muddy sparr. Stones of the same matter or substance, in the shape of muscles, cockles, &c. of various sizes, are also found therein, and now and then pieces of wood hardened and crufted over with a stony substance are likewise found in it.

Many naturalists have already observed, that among the vast variety of extraneous substances found at several

*Part of the Fossil Skeleton of an Animal as it appeared on a
united to the Allom Rock near Whitby, Jan. 3. 1758.*

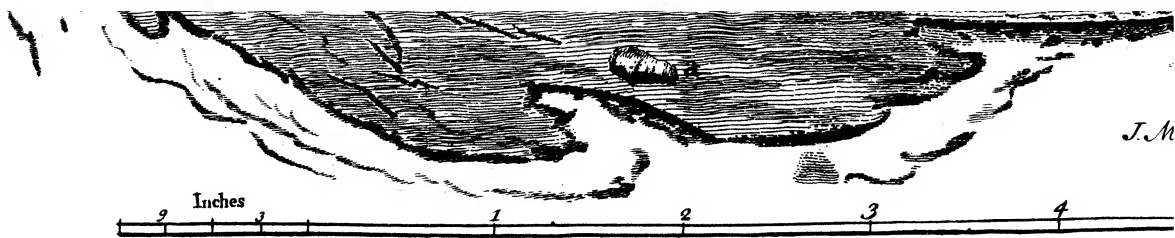
a. a. &c. The Ammon



d on and

Ammonite or Snake Stones.







J. Mynde. sc.

5 Feet.

veral depths in the earth, where it is impossible they should have been bred, there are not so many productions of the earth as of the sea; and it appears by the accounts of authors both ancient and modern, that bones, teeth, and sometimes entire skeletons of men and animals, have been dug up or discovered in all ages, and the most remarkable for size commonly the most taken notice of. In the first particular this skeleton will most probably appear to have belonged to an animal of the lizard kind, quadruped and amphibious; and as to its size, much larger than any thing of that kind ever met with or found in this part of the world; though, from the accounts of travellers, something similar is still to be met with in many of the rivers, lakes, &c. of the other three.

When the annexed drawing thereof was taken January 5, 1758. [See TAB. XXX.] there remained no more of the *vertebræ* than is therein expressed; that is, 10 between D and F, and 12 between G and H: but when it was first discovered, about 10 years ago, they were compleat; and there was besides the appearance of what was then thought to have been fins, near the back part of the head at A, the same as appeared further backward at E, when this design was made. The *vertebræ*, &c. now wanting having been either dug up by curious persons, or washed away by the violence of the waves at high water, and the accidental beating about of stones, sand, &c. during that time; the water covering this skeleton several feet at high water in spring tides; the cavities in the rock still remaining as in the design.

The substance of the bones, with their *periostium*, on the covered or under side, in most parts remains

intire, and their native colour in some places in a good measure preserved, and the teeth with their smooth polish plainly to be discovered. Part of the mandible near the extremity was covered with a shelf of the rock about three inches thick; which being cut away and removed, both the mandibles appeared under it compleat, with the teeth of the upper and under one, plainly locking or passing by each other. These appeared to be of the *dentes exerti* or fang kind, as well as all the others in the narrow part of the mandible, and further backwards they were not observed. From this ledge or shelf the mandible towards B is single, and appears to be the upper one of the living animal; and from the head not being exactly in the line of the body, that part has been inverted, or quite turned over, and the body itself, as appears from the transverse processes of the *vertebræ*, lies on the right side. There appears one row of teeth only on each side of the mandible, and they are about $\frac{3}{4}$ of an inch asunder.

The mandible B A, the *cranium g h*, and the *vertebræ* from D to F, were attempted to be taken up whole; but the bones being rendered extremely brittle, and the rock in which they were fixed being a brittle blackish slate, with joints or fissures running in every direction, would not hold together: the whole therefore fell in many pieces, the *vertebræ* in the joints only, which makes them easy to join together again, and besides shows very plainly the transverse and spinal processes thereof, with the foramen in the latter for the spinal marrow. It was now that a piece of the *os femoris*, about four inches long, shewed itself in the sparry concreted substance at E, together with
a piece

a piece of the *os innominatum*, to which it had been articulated or joined. This, with what has been before remarked, will sufficiently prove this to have been an animal of the quadruped, and probably, from the shape of the cranium peculiar to fishes, of the amphibious kind. At the same time many pieces of the *costæ* or ribs, as broke and crushed up against the *vertebræ*, were plainly visible. The cavities of all the bones were filled with a substance, which appeared the same as the rock itself; and the substance on each side the *vertebræ*, as they laid, was a mixture of sparry concreted matter with that of the rock itself, which is a blackish slate. The animal, when living, must have been at least 12 or 14 feet long. And the dimensions of the whole, or particular parts of the skeleton, may be measured from the scale annexed thereto.

This skeleton lay about six yards from the foot of the cliff, which is about sixty yards in perpendicular height, and must have been covered by it probably not much more than a century ago. The cliff there is composed of various *strata*, beginning from the top, of earth, clay, marle, stones both hard and soft, of various thicknesses, and intermixed with each other, till it comes down to the black slate or alum rock, and about 10 or 12 feet deep in this rock, this skeleton laid horizontally, and exactly as designed. The probability, that this cliff has formerly covered this animal, and extended much more into the sea, is not in the least doubted of by those that know it. The various *strata*, of which it is composed, are daily mouldering and falling down; and the bottom, being the slaty alum rock, is also daily beat, washed, and
wore

wore away, and the upper parts undermined, whence many thousand tuns often tumble down together. Many antient persons now living, whose testimony can be no way doubted of, remember this very cliff extending in some places twenty yards further out than it does at present. In short there is sufficient evidence, that at the beginning it must have extended near a mile further down to the sea than it does at present; and so much the sea has there gained of the land.

These are the principal facts and circumstances attending the situation and discovery of this skeleton; which from the condition it is in, and from the particular disposition of the *strata* above the place where it is found, seem clearly to establish the opinion, and almost to a demonstration, that the animal itself must have been antediluvian, and that it could not have been buried or brought there any otherwise than by the force of the waters of the universal deluge. The different *strata* above this skeleton never could have been broken through at any time, in order to bury it, to so great a depth as upwards of 180 feet; and consequently it must have been lodged there, if not before, at least at the time when those *strata* were formed, which will not admit of a later date than that above-mentioned.

P. S. In the xlixth vol. page 639, of the *Philosophical Transactions*, an animal is described by Mr. Edwards, which was brought from the Ganges, and resembles this in every respect. He calls it *Lacerta (crocodilus) ventre marsupio donato, faucibus Merganseris rostrum æmulantibus*.

Part of the folded stratum of ore, shown as it appeared on and around the above rock near Wilby Jan. 2, 1879

U.S. GEO. SURV. of the U.S. GEO. SURV.

